

09/884,183

15915

REMARKS

Claims 5 to 7 are currently pending in this application. All of the claims have been rejected. By this amendment, Applicant has amended claim 5 for clarity and canceled claim 7 without prejudice. Full support for the amendments is found in the specification and drawings as filed. No new matter has been added. In view of the above amendments and the following remarks, Applicant respectfully submits that this application is in condition for allowance. Accordingly, a timely indication of allowance is respectfully requested.

The Present Invention

The present invention is directed to a novel and non-obvious method of breeding an animal line for experimental use.

As explained in the specification on page 2, line 12 to page 3, lines 22, laboratory mice are only allowed to breed for eight months. Over the last half century this has radically altered the telomeres of lab mice compared to wild mice. The telomeres of lab mice are typically ten times longer than the telomeres of normal mice. As a consequence, lab mice overwhelmingly die of tumors, show few signs of decline with age, have an extraordinary ability to regenerate tissue with age, and have an extraordinary ability to repair damage throughout life.

These differences have led to problems with current lab mice for use in testing drugs, pesticides and other chemical agents and procedures. For example, some substances that have been shown to cause cancer in lab mice, such as saccharin, seem to produce no such effect in humans. Conversely, for example, some substances that are now suspected of causing tissue damage in humans, such as Fen-Phen (fenfluramine, phentermine, dexfenfluramine), did not cause enough harm to laboratory animals to raise appropriate safety questions.

Accordingly, as explained on page 4, lines 2 to page 6, line 3, breeders need to breed test animals in such a manner that laboratory tests can give researchers an accurate picture of the probable risks, costs, hazards and dangers that humans, pets and other species are likely to face when exposed to the agents and procedures being tested. In order to accomplish this end, the present invention is directed to a method of breeding an animal line for experimental use

09/884,183

15915

comprising the steps of: preselecting a first population of one or more conspecific animals comprising cells comprising chromosomes with telomeres of determinable lengths; determining a statistical distribution of telomere lengths among cells of the animals of the first population; and following the determining step, permitting animals with a desired distribution of telomere lengths to produce offspring. By controlling the distribution of telomere lengths in test animals using the method of the present invention, researchers can get more accurate test results.

Claim Amendments

Claim 5 has been amended to change "animal(s)" to "animals" for clarity. Applicant respectfully submits that the step of "permitting animals with a desired distribution of telomere lengths to produce offspring" would necessarily be done after the step of "determining a statistical distribution of telomere lengths among cells of the animals of said first population." However, for clarity, Applicant has amended claim 5 to state "following the determining step, permitting animals with a desired distribution of telomere lengths to produce offspring." Full support for the amendments is found in the specification and drawings as filed. No new matter has been added. Applicant respectfully requests that the above amendments be entered and considered by the Examiner.

Rejection Under 35 U.S.C. §112, First Paragraph

It appears from the Office action that the Examiner has withdrawn the rejection of claims 5-7 under 35 U.S.C. §112, first paragraph. Accordingly, Applicants do not further address the Examiner's prior rejection of claims 5-7 under 35 U.S.C. §112, first paragraph.

Rejection Under 35 U.S.C. §112, First Paragraph

The Examiner rejected claim 7 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Although Applicant does not agree with this rejection,

09/884,183

15915

Applicant has canceled claim 7 in the interest of advancing prosecution of this application. Therefore, this rejection is now moot and Applicant respectfully requests that it be withdrawn.

Rejections Under 35 U.S.C. §102(b)

The Examiner rejected claims 5 to 7 under 35 U.S.C. §102(b) as being anticipated by Lee et al. (Nature 329:669-674). Claim 7 has been canceled by Applicant, and Applicant respectfully traverses this rejection as to claims 5 and 6.

Claim 5, as amended, requires the steps of: "determining a statistical distribution of telomere lengths among cells of the animals of said first population; and following the determining step, permitting animals with a desired distribution of telomere lengths to produce offspring." Applicant respectfully submits that Lee et al fail to teach or suggest either of these limitations.

Lee et al. are directed to a study of the role of mouse telomerase in highly proliferative organs. As part of their experimentation, Lee et al. produced additional generations of mice from successive matings. (See pg. 570). Once produced, all of the generations of mice were analyzed for differences. However, no determination of a statistical distribution of telomere lengths was made prior to breeding as required by claim 5. Moreover, breeding was not limited to animals with a desired distribution of telomere lengths, as also required by claim 5. Therefore, Lee et al. do not anticipate claim 5.

Additionally, one skilled in the art would have no motivation to modify Lee et al. to determine a statistical distribution of telomere lengths prior to breeding or to limit breeding to those animals with a desired distribution of telomere lengths as claimed, because Lee et al. were not concerned with achieving a test animal population suitable for testing drugs, pesticides and other chemical agents and procedures. Rather, Lee et al. focused on effects of the absence of mouse telomerase over subsequent generations. Claim 6 is dependent on claim 5 and by definition contains all of the limitations of claim 5. Therefore, claim 6 is patentable over Lee et al. for the reasons given above for claim 5 as well as because of the additional

09/884,183

15915

limitations contained therein. Accordingly, Applicant respectfully requests that the 35 U.S.C. §102(b) rejection of claims 5 and 6 based on Lee et al. be withdrawn.

The Examiner rejected claims 5 to 7 under 35 U.S.C. §102 as being anticipated by Shiels et al. (nature 399:316-317, May 27, 1999). Claim 7 has been canceled by Applicant, and Applicant respectfully traverses this rejection as to claims 5 and 6.

As explained above, claim 5, as amended, requires the steps of: "determining a statistical distribution of telomere lengths among cells of the animals of said first population; and following the determining step, permitting animals with a desired distribution of telomere lengths to produce offspring." Applicant respectfully submits that Shiels et al. fail to teach or suggest either of these limitations.

Shiels et al. conducted an analysis of telomere lengths in cloned sheep. As explained on page 316, three cloned animals were made from differently aged donors. No determination of a statistical distribution of telomere lengths was done prior to cloning as required by claim 5. Moreover, the cloning of animals was not limited to animals with a desired distribution of telomere lengths, as required by claim 5. Therefore, Shiels et al. do not anticipate the method of claim 5.

Additionally, one skilled in the art would have no motivation to modify Shiels et al. to determine a statistical distribution of telomere lengths prior to cloning or to limit cloning to those animals with a desired distribution of telomere lengths as claimed, because Shiels et al. were not concerned with achieving a test animal population suitable for testing drugs, pesticides and other agents and procedures. Rather, Shiels et al. focused on the effects of cloning differently aged sheep on telomere length. Claim 6 is dependent on claim 5 and by definition contains all of the limitations of claim 5. Therefore, claim 6 is patentable over Shiels et al. for the reasons given above for claim 5 as well as because of the additional limitations contained therein. Accordingly, Applicant respectfully requests that the 35 U.S.C. §102(b) rejection of claims 5 and 6 based on Shiels et al. be withdrawn.

09/884,183

15915

CONCLUSION

In view of the above amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Accordingly, reconsideration and a timely indication of allowance are respectfully requested.

If the Examiner believes a telephone conference would aid in the prosecution of this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

No fee is believed due with this communication. However, the Commissioner is authorized to charge any fee due to Deposit Account No. 19-2090.

Respectfully submitted,

SHELDON & MAK PC

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By



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